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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/735,783 | 12/13/2000 | Paul W. Jones | 81574THC | 6604 |

7590 04/21/2004

Patent Legal Staff
Eastman Kodak Company
343 State Street
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EXAMINER

SON, LINH L D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2135

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/735,783 | JONES ET AL. | |
| | Examiner | Art Unit | |
| | Linh LD Son | 2135 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2 and 3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
3. Claims 1-5, 13-14, 15-17, 25, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Rhoads (US/6026193).
4. As per claim 1, Rhoads discloses the "Video Steganography" invention which includes a method for embedding message data in a digital image sequence having two or more frames, comprising the steps of: a) providing a dispersed message image representative of the message data (Col 55 lines 42-64, and Col 5

line 55 to Col 56 line 24); and b) combining spatially shifted versions of the dispersed message image with successive frames of the digital image sequence (Col 5 line 55 to Col 56 line 24).

5. As per claims 2 and 14, Rhoads discloses the method claimed in claims 1 and 13, wherein the step of providing a dispersed message image includes the steps of:
a1) producing a message image representing the message data (Col 5 line 55 to Col 56 line 24); a2) providing a carrier image (Col 15 lines 42-50); and a3) convolving the message image with the carrier image to produce the dispersed message image (Col 43 lines 5-25).
6. As per claims 3 and 15, Rhoads discloses the method claimed in claims 1 and 13, wherein the spatially shifted dispersed message images are not visible when added to the frames of the digital image sequence (Col 5 line 55 to Col 56 line 24).
7. As per claims 4 and 16, Rhoads discloses the method claimed in claims 2 and 14, wherein the carrier image has random phase (Col 4 lines 30-39) and substantially flat Fourier amplitude (Col 13 line 60 to Col 14 line 10).
8. As per claims 5 and 17, Rhoads discloses the method claimed in claims 2 and 14, wherein the spatially shifted versions of the dispersed message image are generated by shifting the carrier image prior to convolving with the message image (Col 34 lines 47-63 and Col 5 line 55 to Col 56 line 24).

9. As per claims 13, Rhoads discloses a system for embedding message data in a digital image sequence having two or more frames, comprising: a) means for providing a dispersed message image representative of the message data (Col 41 lines 1-14); and b) means for combining spatially shifted versions of the dispersed message image with successive frames of the digital image sequence (Col 41 lines 1-14 and Col 55 line 65 to Col 56 line 23).
10. As per claims 25, Rhoads discloses a digital image sequence produced by the method of claim 1 (Col 39 line 65 to Col 40 line 8).
11. As per claims 26, Rhoads discloses a computer program for performing the method of claim 1 (Col 66 lines 52-60).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6-8 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads in view of Honsinger et al (US/6044156).

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3. As per claims 6 and 18, Rhoads discloses the method claimed in claims 5 and 17. However, Rhoads does not teach the use of the carrier image is circularly shifted. Nevertheless, Honsinger et al discloses the "Method for generating an improved carrier for use in an image data embedding application" invention, which includes the feature (Col 4 lines 30-39). Therefore, it is obvious at the time of the invention was made for one of ordinary skill in the art to include the feature to extract the image or encode it (See abstract).
4. As per claims 7 and 19, Rhoads discloses the method claimed in claim 1 and 13, wherein the spatially shifted versions of the dispersed message image are generated by circularly shifting the dispersed message image (Col 4 lines 30-39).
5. As per claims 8 and 20, Rhoads discloses the method claimed in claims 1 and 13. However, Rhoads does not teach the spatially shifted versions of the dispersed message image are shifted randomly for successive frames. Nevertheless, Honsinger et al do include this feature in the "Method for generating an improved carrier for use in an image data embedding application" invention (Col 4 lines 30-39). Therefore, it is obvious at the time of the invention was made for one of ordinary skill in the art to combine both methods to embedded a message in the digital images.
6. Claims 9-12 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads in view of Sun et al (US/6678389).

7. As per claims 9 and 21, Rhoads discloses the method claimed in claims 1 and 20. However Rhoads does not comprise the steps of: c) extracting the message image from a plurality of frames of the image sequence; and d) averaging the extracted message images to provide an improved signal-to-noise ratio. Nevertheless, Sun et al teach the feature in the "Method and Apparatus for Embedding digital information in digital multimedia data" invention (Col 4 lines 1-35). Therefore, It is obvious at the time of the invention was made for one of ordinary skill in the art to incorporate the Sun et al teaching with Rhoads', since both methods are designed for encoding digital message in a multiple frames environment.
8. As per claims 10 and 22, Rhoads discloses the method claimed in claims 2 and 14. However, Rhoads does not include the steps of: c) extracting the message image from a plurality of frames of the image sequence by correlating the carrier image with the respective frames; and d) averaging the extracted message images to provide an improved signal-to-noise ratio. Nevertheless, Sun et al does includes the steps in the "Method and apparatus for embedding digital information in digital multimedia data" invention (Col 4 lines 20-35). Therefore, it is obvious at the time of the invention was made for one of ordinary skill in the art to combine the method of Rhoads and the steps of Sun et al to embed message in the multimedia images.
9. As per claims 11 and 23, Rhoads discloses the method claimed in claims 1 and 13, further comprising the steps of: c) determining the spatial shift applied to each spatially shifted version of the dispersed message image; and d) aligning a

plurality of frames based on the determined shift applied to the respective dispersed message images and averaging the aligned frames to produce an average frame; and e) extracting the message image from the averaged frame. Same base of rejections on claim 10 and 1 is applicable.

10. As per claims 12 and 24, Rhoads discloses the method claimed in claims 2 and 14, further comprising the steps of: c) determining the spatial shift applied to each spatially shifted version of the dispersed message image; and d) aligning a plurality of frames based on the determined shift applied to the respective dispersed message images and averaging the aligned frames to produce an average frame; and e) extracting the message image from the averaged frame by correlating the carrier image with the averaged frame. Same base of rejections of claims 2 and 10 are applicable.

Conclusion

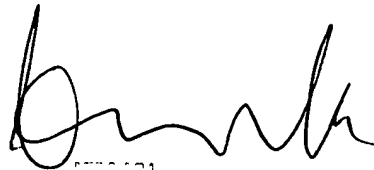
11. Any inquiry concerning this communication from the examiner should be directed to Linh Son whose telephone number is (703)-305-8914.
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Kim Y. Vu can be reached at (703)-305-4393. The fax numbers for this group are (703)-872-9306 (official fax). Any inquiry of general nature or relating to

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the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703)-305-9600.

Linh LD Son

Patent Examiner



SEP 10 2003
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TECHNICAL CENTER 2103